

(12) UK Patent Application (19) GB (11) 2 197 184 (13) A

(43) Application published 18 May 1988

(21) Application No 8726577

(22) Date of filing 13 Nov 1987

(30) Priority data

(31) 3638995

(32) 14 Nov 1986

(33) DE

(71) Applicant

Otto King GmbH

(Incorporated in FR Germany)

Postfach 1240, 5277 Marienheide-Kotthausen, Federal Republic of Germany

(72) Inventor

Alfred Korb

(74) Agent and/or Address for Service

Page White & Farrer,

5 Plough Place, New Fetter Lane, London EC4A 1HY

(51) INT CL⁴

A47B 88/14

(52) Domestic classification (Edition J):

A4B 11 12D 15A2 15A3 15A5 17C 19

U1S 2279 A4B

(56) Documents cited

GB A 2168597

GB A 2139875

GB A 2061701

GB A 2140282

GB A 2079145

US 4653821

GB A 2140281

GB A 2061705

US 4606588

(58) Field of search

A4B

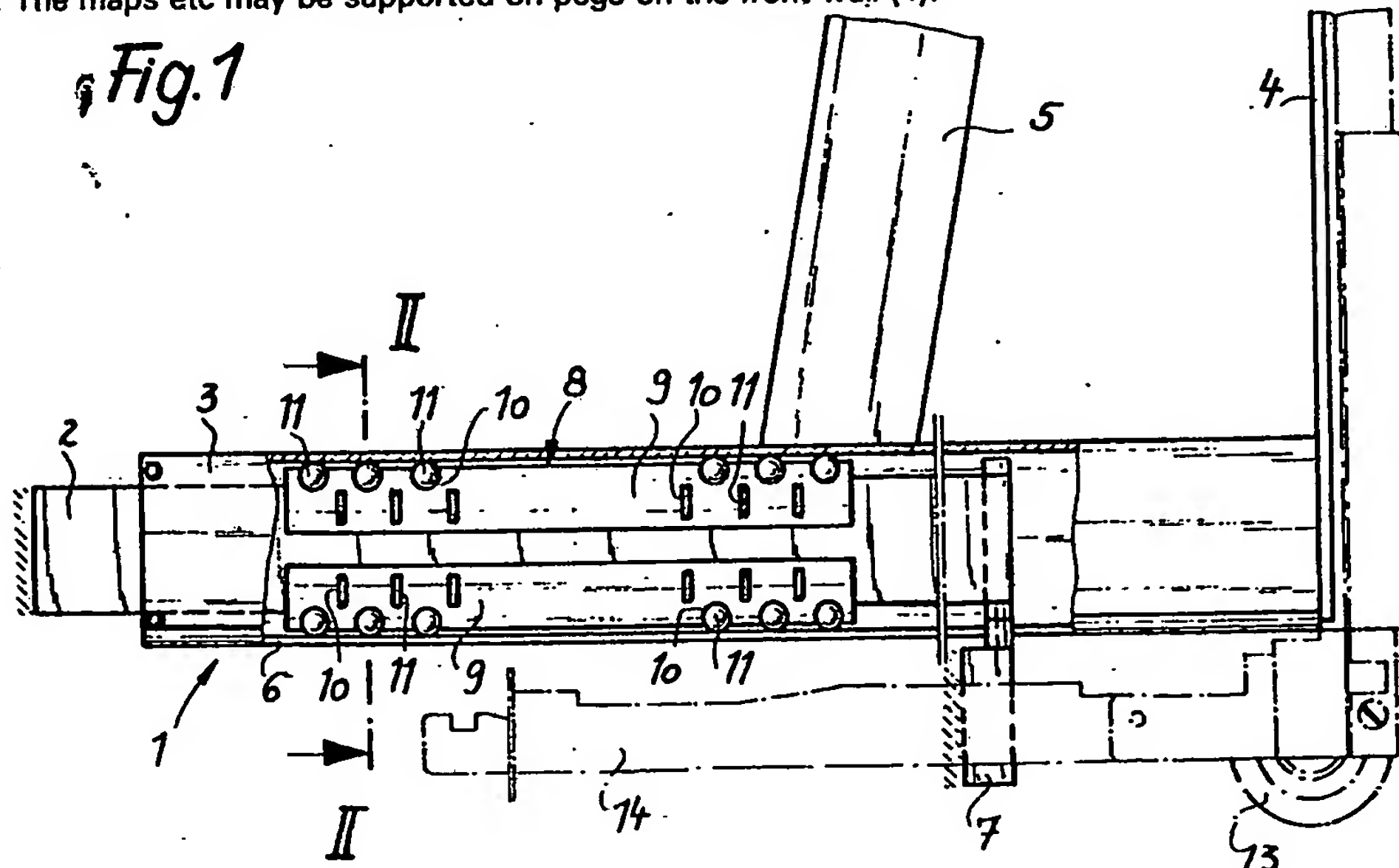
Selected US specifications from IPC sub-class A47B

(54) Drawer sliding mechanism

(57) In a cabinet for the hanging storage of drawings or the like, the front wall (4) is supported on the cabinet body by means of two guide rail pairs (1) arranged horizontally on the inner side walls of the cabinet.

Each guide rail pair consists of a first guide rail (2) held on the cabinet body and a second guide rail (3) fastened to the front wall (4) and pointing into the cabinet body, which are made to be movable lengthwise relative to one another by means of rolling elements (8) arranged between them. The first guide rail (2) may have a rectangular profile, the second guide rail (3), which may surround the first rail (2), has a C-shaped cross section, the open part being directed downwards, thus allowing entrance of the front support (7) for rail (2). Between the guide rails (2,3) there may be two U-shaped rails 9, each having three sets of rolling elements (11), one set engaging the top or bottom of the guide rails (2,3) and the other two sets engaging the sides of the guide rails (2,3).

When the drawer is opened it may be supported on wheels (13) and its movement limited by device (14). The maps etc may be supported on pegs on the front wall (4).



GB 2 197 184 A

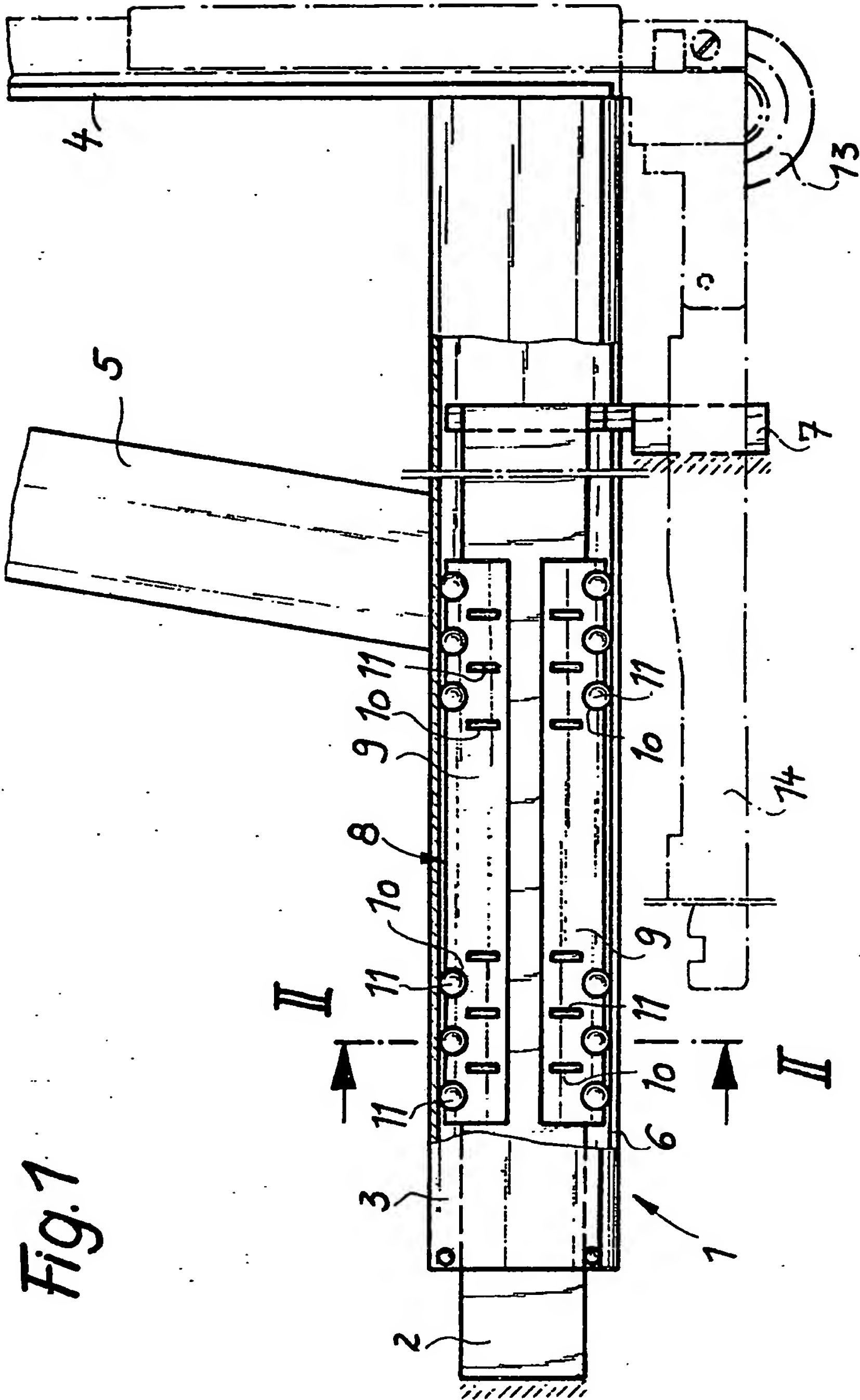
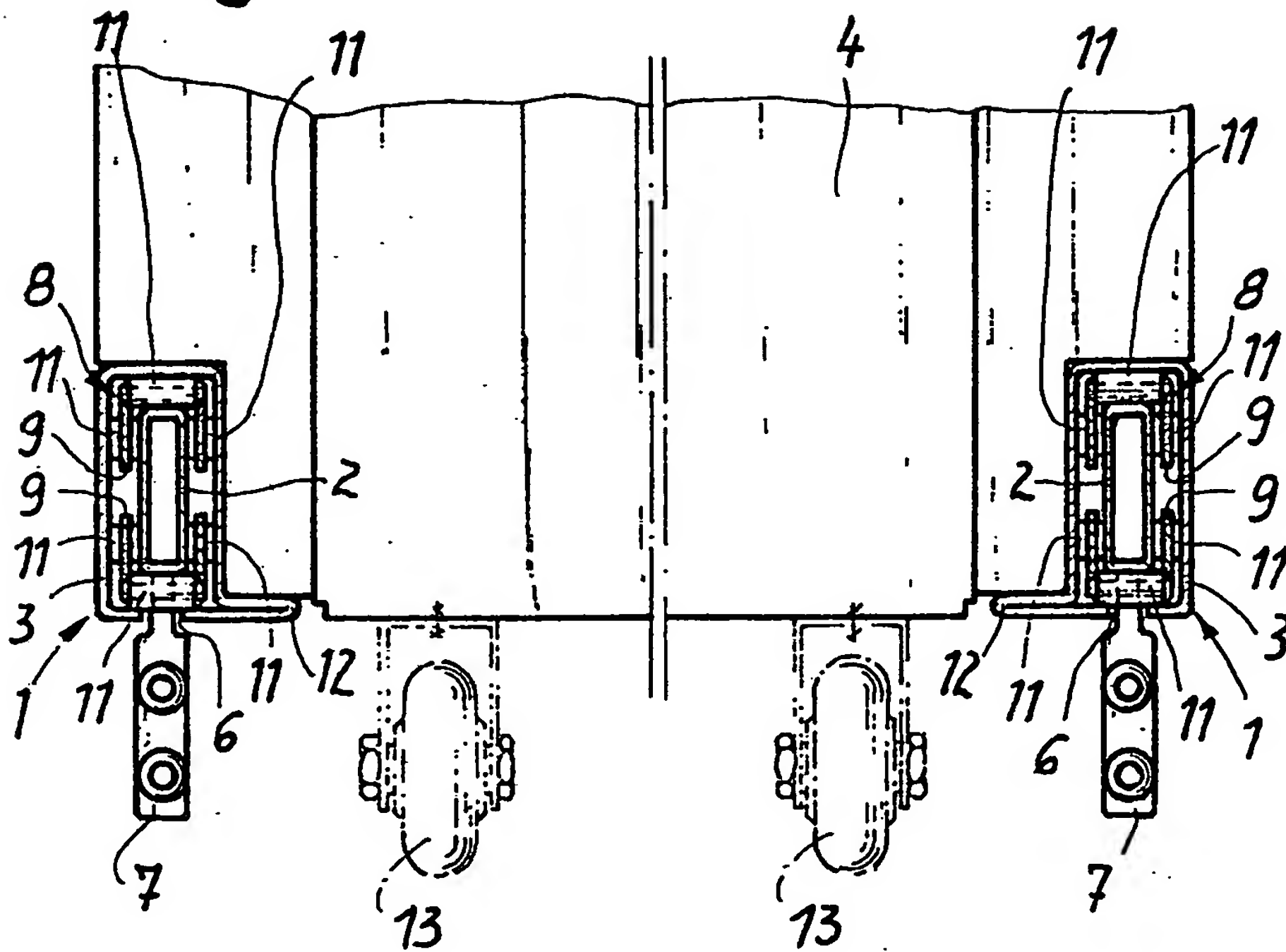


Fig. 2



SPECIFICATION

Arrangement in a cabinet

5 The invention concerns an arrangement in a cabinet, such as for hanging storage of drawings and the like, the front wall of which is supported by the body of the cabinet, whereby the front wall is mounted for limited
10 movement on the body of the cabinet by two special guide rails horizontally arranged on the inner side of the side walls of the cabinet, each guide rail pair consisting of a first guide rail fixed to the cabinet body and a second
15 guide rail fastened to the front wall and directed backwards to the cabinet body, which are formed longitudinally adjustable to one another by means of a rolling bearing arranged between them.

20 With a cabinet of the above described type for storage of drawings, covers for drawings, or the like, known from working practice, which has arranging pegs for the drawings directed towards each other in the inner cradle and which allows convenient removal and introduction of drawings from the side when the cabinet is open, the guide rails made from sheet metal strips are arranged on edge and have antifriction bearing sections on both narrow
30 long sides of the guide rails between which antifriction bearings in the form of balls are arranged.

However, from this the disadvantage arises that foreign bodies can get between the antifriction bearing sections, so that the guiding function can be at least endangered.

Above all, however, the control of the front wall attainable in this way is relatively labile, thus for example the rigidity of fastening is
40 relatively insufficient.

The object of the invention is then to improve by simple means and methods an arrangement of the type described so that a much greater stability can be obtained than at present whilst retaining the advantages already obtained with present techniques, namely that with the opened cabinet the drawings can be extremely conveniently placed in or removed from the cabinet from the side.

50 The solution of the task is characterized in that one guide rail of each guide rail pair is built to surround almost completely lengthwise the other associated guide rail and in that these guide rails each have at least three antifriction bearing sections running along the rails with antifriction bearings in them.

From this there results both a previously unobtained vertical and horizontal stability for the part of the cabinet adjustable forwards from the cabinet body, which because of this is also suitable for carrying loads on the frame of 150 kg, for example, without any problem.

For this it is advantageous if the second guide rails of each pair, supported on the
65 front wall, surround the first guide rails fas-

tened to the frame.

Through this the antifriction sections and the rollers are protected from fouling or any deformation even when the front wall is in the forward position from the cabinet body.

70 An embodiment of the device described above which is both simple to manufacture and can also carry great loads is characterized in that the guide rails have polygonal, especially rectangular, profiles and in particular that antifriction bearing sections, lying opposite one another, with rolling elements positioned between them, are arranged on all their faces.

To further improve load bearing it is advantageous if the second guide rails each have, especially on the underside, a longitudinally running slit and if each of the first guide rails has a transversely supporting holder on the front end section which, like the rear section of the first guide rails, is fastened to the cabinet body.

The holders pass through the longitudinal slits of the second guide rails so that these can be moved longitudinally.

90 A preferred embodiment of the above described arrangement, with a high capacity to support weight, is characterized in that the first guide rails are each formed as tubes with rectangular profiles arranged on their edges and that the second guide rails each have over their entire length equal, essentially C-shaped cross sections which are so placed that the flange sections on the long edges, directed towards each other and separated from each other, are at the bottom of the guide rails.

In addition it is advantageous if the rolling elements are formed as rollers whereby it is further preferable if the rollers interacting with the narrow long sides of the guide rails have a greater diameter than the movable rollers on the broad long sides of the guide rails.

By these means it is possible to construct the arrangement to be extremely space-saving, without decreasing the load bearing capacity.

110 In addition to this a further advantageous development with high load bearing capacity is characterized in that for each pair of guide rails, a rolling element cage running along the guide rails is provided, with separated rolling elements, especially rollers, at least in its end regions, the length of the rolling element cage corresponding to about a third of the length of a guide rail and in that the rolling element cage is situated at least nearly in the middle of the length of the guide rails when the front wall is adjacent to the cabinet body, whereby preferably each rolling element cage consists of two rails with U-shaped profiles equal to each other, having in the bases and the flanges of these rails several separate rolling body rollers arranged at right angles to the rails fixed so that they can rotate, and in that the rolling body rollers protrude both on the inside and on the outside through the walls of
125
130

the U-shaped rails and in that the U-shaped rails, arranged opposite each other, are put on a first guide rail so that the flanges of the U-shaped rails are opposite the broad long sides of the guide rail and in that the rolling body rollers are supported by static friction on the guide rails.

This also has the advantage of the possibility of simple manufacture. Moreover because of the above described rolling element cages, catches limiting the extent of pulling out when placing the front wall in the open position are provided, without additional devices, if the rolling element cages are limited by the supports on the front ends of the first guide rails.

It is also advantageous if the cages are made of plastic, which can for instance be easily and cheaply made in one piece from an original form and moreover after wear of the rolling elements for example a relatively frictionless adjustment of the guide rails to one another is still possible.

An example of an embodiment of the invention is shown in the drawings and is described in more detail in the following.

Figure 1 shows a part of a cabinet for hanging storage of drawings, in particular a side-view of its front wall and total sliding arrangement.

Figure 2 shows the same seen in the direction of the line II-II.

Here a guide rail pair 1 is provided on each inner side wall of the cabinet body which is not shown.

Each guide rail pair 1 consists of a first guide rail 2 which is fastened to the cabinet body and a second guide rail 3 which is adjustable to it longitudinally. On the front end of the two guide rails 3 a front wall 4 is fastened. The guide rail pairs 1 are situated at about the same level as the lower edge of the front wall 4. Moreover with each guide rail pair 1 a front wall supporting strut 5 is provided.

The first guide rails 2 are both formed as rectangularly profiled tubes and are arranged on edge, whilst the second guide rails 3 have over their entire length equal, essentially C-shaped cross sections so that the flange edge sections of the guide rails 3, directed towards one another, form the lower side of the latter.

In each hollow guide rail 3 a first guide rail 2 is inserted to be longitudinally movable. At the front end of each guide rail 2 a transverse support 7 is arranged which passes through the longitudinal slit 6 of the guide rail 3, and which like the rear end section of each guide rail 2 is fastened to the cabinet body which is not shown.

A rolling element cage is associated with each guide rail 2.

These both consist of two rails 9 with U-shaped profiles which are arranged opposite one another and placed on the guide rails 2 so that their bases are against the narrow

long sides and their flanges against the broad long sides of the guide rails 2. Thus each rail 9 provides three antifriction bearing surfaces. In the bases and flanges of the rails 9, arranged at right angles to their length, are rolling element holders 10 in each of which a rolling element 11, in the form of a roller, is so arranged that the latter project on both the inside and the outside of the rolling element holder 10 and can roll on the long sides of both guide rails 2 and 3 which, arranged opposite them, serve as courses for rolling elements. The rolling elements 11 formed as rollers which interact with the narrow long sides of the guide rails have about 3 times the diameter of the rolling elements associated with the broad long sides.

Moreover, the rails 9 are placed on the guide rails 2 in such a way that their rollers are held by static friction at least on the guide rails 2, so that it is ensured that the rolling element cage moves lengthwise relative to the guide rails 2 and 3 on opening and closing the cabinet.

As can be seen from Fig. 2, the second guide rails 3 also have at about the level of their underside and projecting towards the middle of the cabinet, flanges 12 around which the front side 4 is cut away, and which give the guide rails 3 an even better stability in assembly and resistance to bending.

Supporting wheels 13 and a device 14 which is constructed to limit the adjustable movement of the wall 4 can also be put on the front side 4.

Moreover, arranging pegs, which are not shown, are provided in the cabinet arranged against one another for hanging the drawings. The pegs being supported on the front wall 4, and pointing in towards the back wall of the cabinet body.

The invention is also applicable to those cabinets for the hanging storage of drawings and the like, in which not only the front wall 4 but the front end sections of the cabinet consisting of a front wall, side walls and a floor are made to be movable forward on opening the cabinet.

CLAIMS

1. Arrangement in a cabinet, the front wall of which is supported by the body of the cabinet, whereby the front wall is mounted for limited movement on the body of the cabinet by two guide rail pairs horizontally arranged on the inner side of the side walls of the cabinet, each guide rail pair comprising a first guide rail fixed to the cabinet body and a second guide rail fixed to the front wall and directed backwards to the cabinet body, which are formed longitudinally adjustable to one another by means of a rolling bearing arranged between them, characterized in that one guide rail of each guide rail pair is formed

almost completely surrounding the other adjoining guide rail and that each pair of guide rails is provided with at least three antifriction bearing sections, with rolling elements situated
5 in them, and running along the rails.

2. Arrangement according to claim 1 characterized in that the second guide rails (3) support the front wall and surround the first guide rails (2), which are fastened to the
10 frame.

3. Arrangement according to claims 1 or 2 characterized in that the guide rails (2, 3) have a polygonal, especially rectangular, profile and in particular that antifriction bearing sections,
15 lying opposite one another, with rolling elements (11) arranged in them, are arranged on all their faces.

4. Arrangement according to claims 1 or 2 characterized in that the second guide rails (3) each have, on the underside, a longitudinally running slit (6) and in that each of the first guide rails (2) has a transversely supporting holder (7) on the front end section which, like the rear section of the first guide rails, is fastened to the cabinet body and these pass
25 through the longitudinal slits (6) of the second guide rails (3) so that these can be moved longitudinally.

5. Arrangement according to any of claims 30 1 to 4 characterized in that the first guide rails (2) are each formed as tubes with rectangular profiles arranged on their edges and that the second guide rails (3) each have over their entire length equal, essentially C-shaped cross sections which are so placed that the flange sections on the long edges, directed towards each other and separated from each other, form the bottom of the guide rails (3).

6. Arrangement according to any of claims 40 1 to 5 characterized in that the rolling elements (11) are formed as rollers.

7. Arrangement according to claim 6 characterized in that the rollers interacting with the narrow long sides of the guide rails (2, 3) have a greater diameter than the movable rollers on the broad long sides of the guide rails (2, 3).
45

8. Arrangement according to any of claims 50 5 to 7 characterized in that for each pair of guide rails (1), a rolling element cage (8) running along the guide rails is provided, with separated rolling elements, especially rollers, at least in its end region, the length of the rolling element cage (8) corresponding to about a third of the length of a guide rail (2, 3) and in that the rolling element cage (8) is situated approximately in the middle of the length of the guide rails (2, 3) when the front wall (4) is adjacent to the cabinet body.
55

9. Arrangement according to claim 8 characterized in that each rolling element cage (8) consists of two rails with U-shaped profiles (9) equal to each other, having in the bases and the flanges of these rails (9) several separate rolling body rollers (11) arranged at right
65

angles to the rails (9) fixed so that they can rotate, and in that the rolling body rollers protrude both on the inside and on the outside through the walls of the rails (9) and in that the rails (9), arranged opposite each other, are put on a first guide rail (2) so that the flanges of the rails are opposite the broad long sides of the guide rail (2) and in that the rolling body rollers are supported by static friction on the guide rails.
70
75

10. Arrangement according to claim 8 or 9 characterized in that the antifriction body cage (8) is made of plastic.

11. An arrangement for a cabinet substantially as described herein with reference to the accompanying drawings.
80

Published 1988 at The Patent Office, State House, 68/71 High Holborn, London WC1R 4TP. Further copies may be obtained from The Patent Office, Sales Branch, St Mary Cray, Orpington, Kent BR5 3RD. Printed by Burgess & Son (Abingdon) Ltd. Con. 1/87.